



Abstract

Ship Via:

Op No	Operation	Qty	Start Date	Due Date	Standard Setup Run Hrs Hrs	Workcenter/Supplier	Lead Time	DAS Sign-off
100	Mori Seiki TL-40 - 1	1 pcs	4/12/19	4/12/19	2.01 3.57	Mori Seiki TL-40 - 1		662019-06-12
110	QC 2	1 pcs	4/12/19	4/12/19	0.00 0.00	QC 2 - 1		9-89
						QC 2 - 12		
						QC 2 - 14		
						QC 2 - 17		
						QC 2 - 19		
						QC 2 - 2		
						QC 2 - 20		
						QC 2 - 22		
						QC 2 - 23		
						QC 2 - 25		
						QC 2 - 32		
						QC 2 - 33		
						QC 2 - 35		
						QC 2 - 39		
						QC 2 - 4		
						QC 2 - 40		
						QC 2 - 44		
						QC 2 - 45		
						QC 2 - 48		
						QC 2 - 49		
						QC 2 - 50		
						QC 2 - 51		
						QC 2 - 52		
						QC 2 - 54		
						QC 2 - 56		
						QC 2 - 57		
						QC 2 - 62		
						QC 2 - 63		
						QC 2 - 8		DAS
						QC 2 - 86		662019-06-12
								9-89

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				QC 2 - 64	DAS	
120	Mori Seiki TL-40 - 1 - B4B	1 pcs	4/12/19	0.00 3.57	Mori Seiki TL-40 - 1 - B4B	662019-06-17
130	QC 2	1 pcs	4/12/19	0.00 0.00	QC 2 - 1	9-89
				QC 2 - 12		
				QC 2 - 14		
				QC 2 - 17		
				QC 2 - 19		
				QC 2 - 2		
				QC 2 - 20		
				QC 2 - 22		
				QC 2 - 23		
				QC 2 - 25		
				QC 2 - 32		
				QC 2 - 33		
				QC 2 - 35		
				QC 2 - 39		
				QC 2 - 4		
				QC 2 - 40		
				QC 2 - 44		
				QC 2 - 45		
				QC 2 - 48		
				QC 2 - 49		
				QC 2 - 50		
				QC 2 - 51		
				QC 2 - 52		
				QC 2 - 54		
				QC 2 - 56		
				QC 2 - 57		
				QC 2 - 62		
				QC 2 - 63		
				QC 2 - 8	DAS	
				QC 2 - 66	662019-06-17	
				QC 2 - 64	9-89	
140	QC 8	1 pcs	4/12/19	0.00 0.00	QC 8 - 12	
				QC 8 - 14		
				QC 8 - 17		
				QC 8 - 20		
				QC 8 - 25		
				QC 8 - 3		
				QC 8 - 32		
				QC 8 - 33		
				QC 8 - 35		
				QC 8 - 39		
				QC 8 - 4		
				QC 8 - 44		
				QC 8 - 45		
				QC 8 - 49		
				QC 8 - 58		
				QC 8 - 8		
				QC 8 - 9		
				QC 8 - 68		
				QC 8 - 67	GP 19-06-21	
				QC 8 - 1 (A)		
				QC 8 - 47		
150	Crosstubes - 2 - B4B	1 pcs	4/12/19	0.00 0.81	Crosstubes - 1 - B4B	
				Crosstubes - 2 - B4B	STW	
				Crosstubes - 3 - B4B		
				Crosstubes - 4 - B4B		
190	Packaging 3-1 - Stock - B4B	1 pcs	4/12/19	0.00 0.00	Packaging 3 - 1 - B4B	
				Plex 2/21/19 9:27 AM Dart.lajeunesse.marie		

					Packaging 3 - 2 - B4B	
					Packaging 3 - 3 - B4B	
					Packaging 3 - 4 - B4B	
					Packaging 3 - 5 - B4B	
					Packaging 3 - 6 - B4B	
					Packaging 3 - 7 - B4B	
					Packaging 3 - 8 - B4B	
					Packaging 3 - 9 - B4B	
					Packaging 3 - 10 - B4B	
					Packaging 3 - 11 - B4B	
					Packaging 3 - 12 - B4B	
					Packaging 3 - 13 - B4B	
					Packaging 3 - 14 - B4B	
					Packaging 3 - 15 - B4B	
					Packaging 3 - 16 - B4B	
					Packaging 3 - 17 - B4B	
					Packaging 3 - 18 - B4B	
					Packaging 3 - 19 - B4B	
					Packaging 3 - 20 - B4B	
					Packaging 3 - 21 - B4B	
					Packaging 3 - 22 - B4B	
					Packaging 3 - 23 - B4B	
					Packaging 3 - 24 - B4B	
					Packaging 3 - 25 - B4B	
					Packaging 3 - 26 - B4B	
					Packaging 3 - 27 - B4B	
					Packaging 3 - 28 - B4B	
					Packaging 3 - 29 - B4B	
					Packaging 3 - 30 - B4B	
					Packaging 3 - 31 - B4B	
					Packaging 3 - 32 - B4B	
					Packaging 3 - 33 - B4B	
					Packaging 3 - 34 - B4B	
					Packaging 3 - 35 - B4B	
					Packaging 3 - 36 - B4B	
200 QC 21 - SA	1 pcs	4/12/19	0.00 0.00		QC 21 - SA - 21	
					QC 21 - SA - 70	
					QC 21 - SA - 53	

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9:55

Part Op 100 - TL-40 (Mori Seiki CNC Lathe Large) 1-Cut tube on chop saw, leave extra mat'l for facing and install plugs 350-241
 Descriptions: on both ends. 2-Face both sides of tube. 3- Turn program 02000 section on both side as per folio FB468. 4- Turn program 03000 section on both side as per folio FB468. 5- Blend transition lines only with belt sander 60 grit. Folio rev: A Dwg rev: A

110 - (QC2- Inspect parts off machine FAI/FAIB)

120 - TL-40 (Mori Seiki CNC Lathe Large) 1- Turn program 04000 section on both side as per folio FB468. 2- Turn program 05000 section on both side as per folio FB468. 3- Blend transition lines only with belt sander 60 grit. 4-Scribe part # as per Dwg D350-748-243. Folio rev: A Dwg rev: A

130 - (QC2- Inspect parts off machine FAI/FAIB) PERFORME ULTRASONIC MEASUREMENT

140 - (QC8- Inspect parts - second check)

150 - Crosstubes-2 (Crosstubes) 1-Grind machining marks

190 - Identify and stock in kanban rack

200 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6021-125	Crosstube Material - 17-4Ph SS	1 pcs (1 ea)	100-Mori Seiki TL-40 - 1	F151691

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Mori Seiki TL-40 - 1	D6021-125	1	47	0

Part Specifications

Specifications could not be found.

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Container No: S189633



Part: D350-748-243TRN

Job No: 191085

Serial No/Batch: S189633

Revision: A

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 813 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Date: 06/12/19

②

DART AEROSPACE LTD	Work Order: 191085
Description: Crosstube Assembly (AS350/355 High Aft SS)	Part Number: D350-748-243
Inspection Dwg: D350-748-243 Rev: A	Page 1 of 2

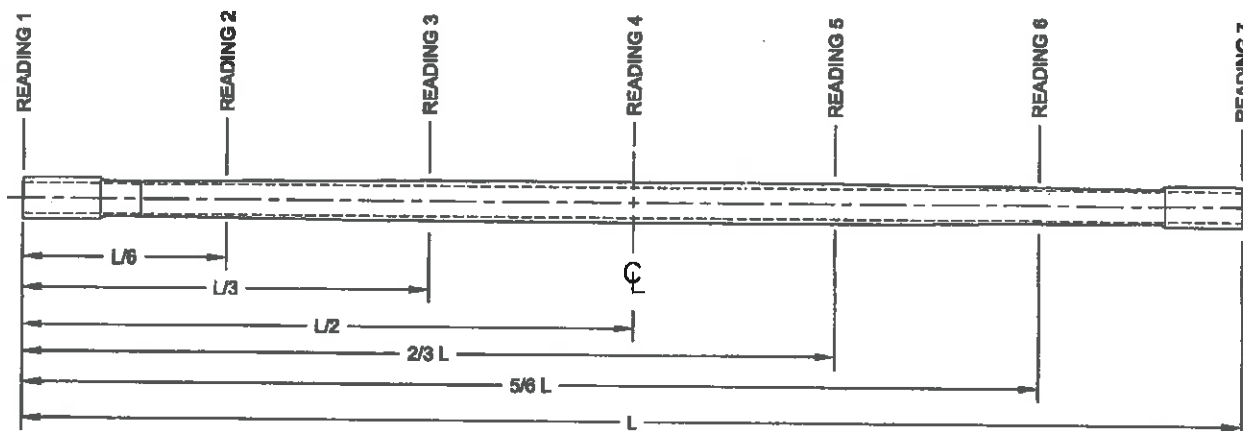
FIRST ARTICLE INSPECTION CHECKLIST

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+/-0.005	2.242	✓		CNC-04
	2.180	+0.005/-0.000	2.184	✓		
	2.180	+0.005/-0.000	2.184	✓		
	2.208	+0.005/-0.000	2.210	✓		
	2.234	+0.005/-0.000	2.236	✓		
	2.253	+0.005/-0.000	2.257	✓		
	2.272	+0.005/-0.000	2.277	✓		
	2.299	+0.005/-0.000	2.304	✓		
	0.063	+/-0.010	.063	✓		CNC-08
	5.25	+/-0.060	5.254	✓		"
	R0.063	+/-0.010	.063	✓		RG
	R0.50	+/-0.030	.500	✓		"
SIDE B	2.240	+/-0.005	2.245	✓		CNC-04
	2.180	+0.005/-0.000	2.185	✓		
	2.180	+0.005/-0.000	2.185	✓		
	2.208	+0.005/-0.000	2.213	✓		
	2.234	+0.005/-0.000	2.239	✓		
	2.253	+0.005/-0.000	2.258	✓		
	2.272	+0.005/-0.000	2.276	✓		
	2.299	+0.005/-0.000	2.304	✓		
	0.063	+/-0.010	.063	✓		CNC-08
	5.25	+/-0.060	5.250	✓		"
	R0.063	+/-0.010	.063	✓		RG
	R0.50	+/-0.030	.500	✓		"
	124.70	+/-0.060	124.71	✓		Tape

②

DART AEROSPACE LTD	Work Order: 191085
Description: Crosstube Assembly (AS350/355 High Aft SS)	Part Number: D350-748-243
Inspection Dwg: D350-748-243 Rev: A	Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L=0"	.144	.137	.141	.142	.007	0.030"
READING 2 L=20.78	.127	.132	.135	.128	.008	
READING 3 L=41.57	.186	.173	.165	.173	.021	
READING 4 L=62.35	.175	.176	.175	.173	.003	
READING 5 L=83.13	.174	.175	.173	.170	.005	
READING 6 L=103.92	.133	.129	.129	.135	.006	
READING 7 L=124.70	.146	.142	.142	.141	.005	

Calibration Result

Actual Block Thickness: 100-200

Sitescan 250 Measured Thickness: 100-200

Measured by:	DAS 66 9-89
Date:	2019-06-17

Audited by:	GP
Date:	19-06-21

Preliminary Approval:	
Date:	

Rev	Date	Change	Revised By	Approved
A	15.09.09	New Issue (P/O D350-748-203)	KJ	

Item	Qty	Part Number	Description
	-243		
1	X	D350-748-243	CROSSTUBE ASSEMBLY (AS 350355 HI AFT)
2	1	D6021-125	CROSSTUBE
3	2	D3502-1	SUPPORT
4	2	D5123-7	CLAMP CUSHION
5	1	AETC-1032	INSERT
6	2	MS21920-20	CLAMP
			(PER DART SPEC. M-MS21920-20-21-22)
7	1	NAS1148C0363R	WASHER (OR AN600C10)
8	1	NAS1635-3-8	SCREW (OR MS51858-63)
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-9802 CLASS B-2

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6021-125
FINISHED LENGTH AFTER TURNING = 124.70±0.06 (AFTER BENDING/TRIMMING = 122.70 REF)
 - 2) FINISH: PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
 - 3) TOLERANCE: PER DART QSI 018 UNLESS OTHERWISE NOTED.
WALL THICKNESS ECCENTRICITY PER DART QSI 038 7.2
MIN. ALLOWABLE WALL IS 0.020 FROM NOMINAL
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
 - 6) IDENTIFICATION: DART PART NUMBER "D350-748-243" AND BATCH NUMBER ON INSIDE OF CLIFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
 - 7) WEIGHT: 28.85 lbs
 - 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.200 HOLE.
 - 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLEND OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- TURNING**
- 10) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- BENDING**
- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES PER SIDE. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 5% BASED ON O.D. ON TOP HALF OF BEND, AND 8% ON BOTTOM HALF OF BEND.
 - 12) MAX AMPLITUDE OF RIPPLING ALONG BENT PORTION OF THE TUBE IS 0.030 (ZN A1-3)
 - 13) MAX TWIST: WITH TUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.38 (ZN C1-3).
- ASSEMBLY**
- 14) TO INSTALL D3502-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.02" TO 0.05" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-9802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
 - 15) TORQUE CLAMPS 80 TO 80 IN.-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

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WITHOUT NOTICE
WORK ORDER
NO. 191085-1902-21

DEO ATTACHED

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2015 MAR 18

RELEASED

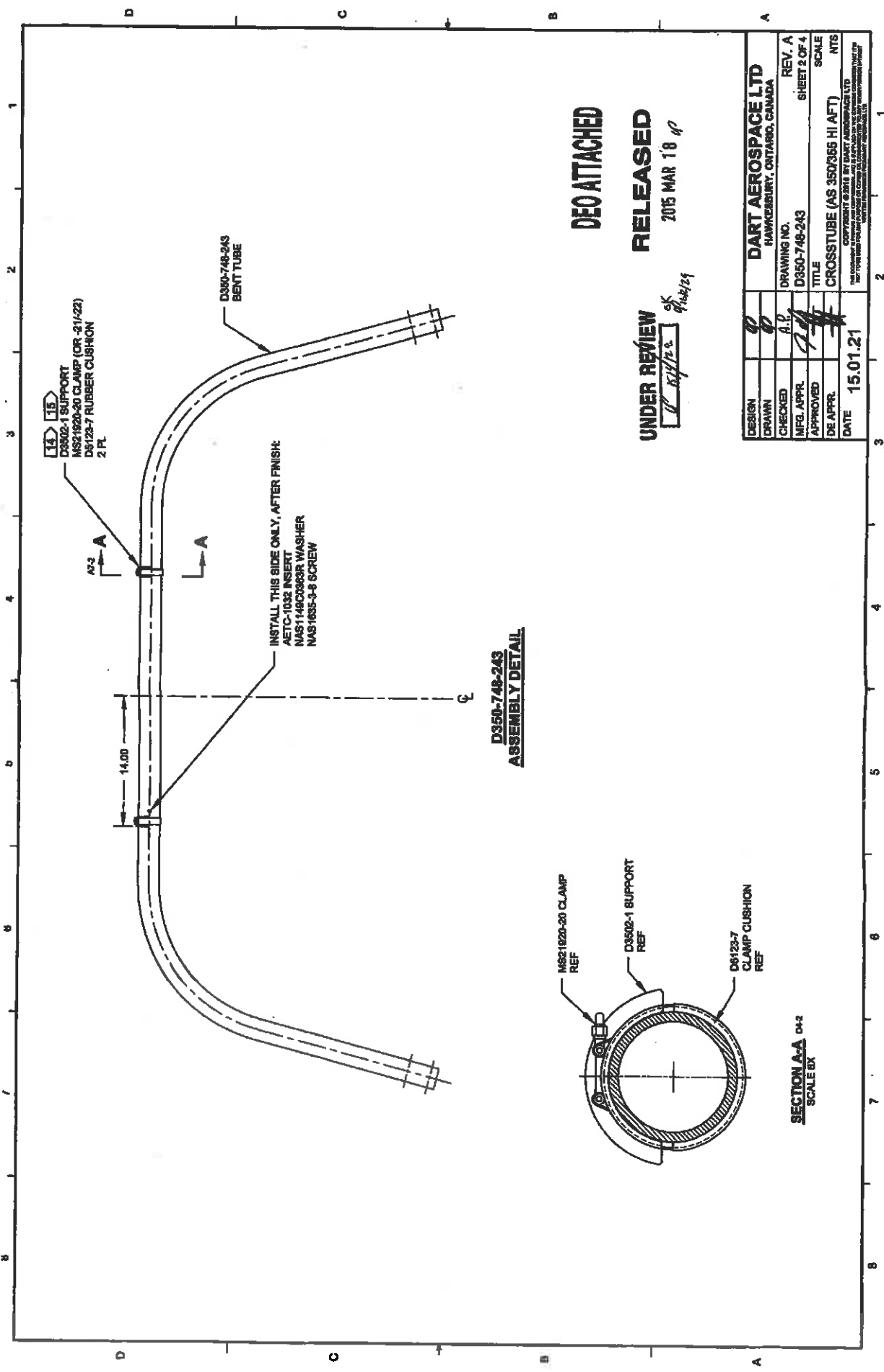
UNDER REVIEW

15/14/15
LRF 15/14/15
16/12/15

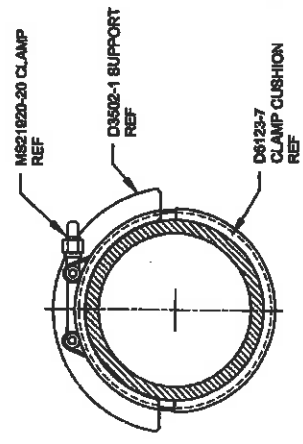
2015 MAR 18
15/14/15
16/12/15

A	NEW ISSUE	CP	SY	DATE
REV.	DESCRIPTION			
DESIGN				
DRAWN				
CHECKED				
MFG. APPR.				
DE APPR.				
DATE	15.01.21			

DART AEROSPACE LTD	DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA	HAWKESBURY, ONTARIO, CANADA
DRAWING NO.	D350-748-243
TITLE	CROSSTUBE (AS 350355 HI AFT)
SCALE	SHEET 1 OF 4
NTS	NTS



D350-748-243
ASSEMBLY DETAIL



SECTION A-A CH-2
SCALE 5X

DEO ATTACHED

RELEASED

2015 MAR 18 40

UNDER REVIEW

OK
KJ/p.s.
9/14/29

DESIGN	00	DART AEROSPACE LTD
DRAWN	00	HAWKESBURY, ONTARIO, CANADA
CHECKED	A.P.	DRAWING NO.
MFG. APPR.	2.0	D350-748-243
APPROVED	2.0	TITLE
DATE	15.01.21	CROSSTUBE (AS 350/365 HI AFT)
		NTS

REV. A
SHEET 2 OF 4
SCALE

COMPONENT OF 350/365 HI AFT ASSEMBLY
THIS DOCUMENT IS UNCLASSIFIED AND IS NOT A PART OF THE TECHNICAL DRAWING
NOT TO BE USED FOR CONSTRUCTION PURPOSES WITHOUT THE AUTHORITY OF DART AEROSPACE LTD

DRAWING NO. D350-748-243	TITLE CROSSTUBE	REV. A	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D350-748-243-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN 90	CHECKED AJS		MFG. APPR. <i>[Signature]</i>	APPROVED <i>[Signature]</i>		DE APPR. <i>[Signature]</i>	
DATE 15.11.18	DATE 15.11.18		DATE 15.02.19	DATE FEB 19 2016		DATE 2016.02.19	

AMEND NOTE 2 (SHEET 1) AS FOLLOWS:

2) FINISH: PREPARE SURFACE PER DART QSI 005 4.1.4
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2

OR

POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3

RELEASED
2016-02-26
EW 16-534